(19) World Intellectual Property Organization International Bureau

Organization
International Bureau



(43) International Publication Date 1 July 2004 (01.07.2004)

PCT

(10) International Publication Number WO 2004/055988 A3

- (51) International Patent Classification⁷: H03L 7/00
- H03K 5/13,
- (21) International Application Number:

PCT/IB2003/005746

- (22) International Filing Date: 8 December 2003 (08.12.2003)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/433,373 13 December 2002 (13.12.2002) US

- (71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (71) Applicant (for AE only): U.S. PHILIPS CORPORA-TION [US/US]; 1251 Avenue of the Americas, New York, NY 10020 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): EASWARAN, Sri, Navaneethakrishnan [NL/NL]; P.O. Box 220, NL-5600 AE Eindhoven (NL).

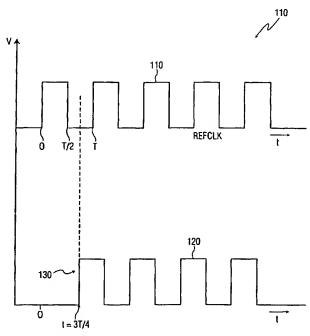
- (74) Common Representative: KONINKLIJKE PHILIPS ELECTRONICS N.V.; Intellectual Property & Standards, c/o KEEGAN, Frank, P.O. Box 3001, Briarcliff Manor, NY 10510-8001 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

 as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations

[Continued on next page]

(54) Title: COARSE DELAY TUNER CIRCUITS WITH EDGE SUPPRESSORS IN DELAY LOCKED LOOPS



(57) Abstract: The invention discloses a delay locked loop which includes a coarse delay tuner circuit with edge suppressors suitable for use with delay locked loops (DLLs). The disclosed tuner circuit provides reduced lock time of the DLL circuit.

O 2604/055988 A3 |||||||||||||

WO 2004/055988 A3



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
4 November 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H03K5/13 H03L H03L7/00 According to International Patent Classification (IPC) or to both national classification and IPC **B. FIELDS SEARCHED** Minimum documentation searched (classification system followed by classification symbols) IPC 7 HO3L Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data C. DOCUMENTS CONSIDERED TO BE RELEVANT Category Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. Α US 6 304 116 B1 (YOO CHANG-SIK ET AL) 1-31 16 October 2001 (2001-10-16) column 6, line 44 - column 7, line 15 Α US 6 215 726 B1 (KUBO TAKASHI) 1 - 3110 April 2001 (2001-04-10) column 8, line 39 - column 10, line 29 PATENT ABSTRACTS OF JAPAN Α 1-31 vol. 1999, no. 08. 30 June 1999 (1999-06-30) & JP 11 085308 A (NIPPON STEEL CORP). 30 March 1999 (1999-03-30) abstract; figure 3 Further documents are listed in the continuation of box C. Patent family members are listed in annex. Special categories of cited documents: *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone filing date *U* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) •Y• document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such docu-*O* document referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled in the art. document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 10 September 2004 17/09/2004 Name and mailing address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo ni, Fax: (+31–70) 340–3016 Villafuerte Abrego

TIENNATIONAL SEATION HEL ON

Information on patent family members

Internal Application No

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 6304116	B1	16-10-2001	KR JP TW	2000051784 2000224029 448627	A	16-08-2000 11-08-2000 01-08-2001
US 6215726	B1	10-04-2001	JP	2001060391	Α	06-03-2001
JP 11085308	Α	30-03-1999	NONE			